EXECUTIVE SUMMARY

Introduction

Section 10 of Engrossed Substitute House Bill 2496 (Salmon Recovery Act of 1998), directs the Washington State Conservation Commission, in consultation with local government and treaty tribes to invite private, federal, state, tribal, and local government personnel with appropriate expertise to convene as a Technical Advisory Group (TAG). The purpose of the TAG is to identify habitat limiting factors for salmonids. Limiting factors are defined as "conditions that limit the ability of habitat to fully sustain populations of salmon, including all species of the family Salmonidae." The bill further clarifies the definition by stating "These factors are primarily fish passage barriers and degraded estuarine areas, riparian corridors, stream channels, and wetlands." It is important to note that the responsibilities given to the Conservation Commission in ESHB 2496 do not constitute a full limiting factors analysis. This report is based on a combination of existing watershed studies and knowledge of the TAG participants.

WRIA 27 is located in Southwest Washington within portions of Skamania, Clark, and Cowlitz Counties, and it includes three major watersheds; the Kalama River, the Lewis River (North Fork), and the East Fork Lewis River (see Map Appendix A-1). All river systems within WRIA 27 drain to the Columbia River. Six stocks of anadromous salmon and steelhead return to the rivers. For purposes of this analysis the WRIA was separated into four subbasins, lower and upper Lewis River (below and above the dams), East Fork Lewis, and Kalama.

WRIA 27 Habitat Limiting Factors

The major habitat limiting factors that were common to all streams within WRIA 27 included:

- Almost throughout WRIA 27, LWD abundance was below the habitat standards. Adequate large woody debris in streams, particularly larger key pieces, is critical to developing pools, collecting spawning gravels, and providing habitat diversity and cover for salmonids.
- Riparian conditions were also poor within most of the basins. Loss of riparian function affects water quality, erosion rates, streambank stability, and instream habitat conditions.
- Water quality, especially high water temperatures, was identified as a major limiting factor within certain subbasins of WRIA 27.
- Water quantity was also identified as a limiting factor almost throughout WRIA 27. Both low flows that limit the rearing habitat and access and increased peak flows that alter instream habitat were considered significant problems in many of the subbasins.
- Most of the historic off-channel and floodplain habitat has been disconnected from the river by diking and hardening the channels. Loss of these off-channel habitats limits rearing and over-wintering habitat for juvenile salmonids.

WRIA 27 Recommendations for Addressing Limiting Factors

- Develop or revise and update land use ordinances that are meant to protect critical habitat for threatened and endangered species;
- Protect and enhance riparian habitat with sufficiently sized buffers and speed recruitment of conifers to increase the potential future supply of LWD;
- Supplement LWD within productive tributaries after careful consideration of the hydraulics and suitability of the site;
- Continue to identify ways to reduce water temperatures, increase water quality, augment minimum streamflows, and replace passage barriers within WRIA 27;

Kalama River Habitat Limiting Factors

Approximately 96% of the Kalama watershed is in commercial forestry and owned by private companies. During the 1970's, almost the entire watershed, including the riparian zones, was logged, most of the instream LWD debris was removed, and an extensive system of roads was constructed. The resultant loss of riparian function and instream LWD, and the alterations in hydrology have left many subbasins with poor habitat conditions for salmonids.

Most of the historic floodplain has been diked and disconnected from the river to protect highway and industrial development; further degrading already naturally limited rearing and over-wintering habitat for juvenile coho. A wide and shallow bar continues to grow at the mouth of the Kalama, where predation and excessive water temperatures is likely limiting fish passage. Coarse sediments have accumulated at the mouths of many tributaries, limiting access and rearing habitat during low flows, and fine sediments have embedded spawning substrates in areas of the mainstem Kalama.

Recommendations for addressing limiting factors include:

- Assess and then develop solutions to conditions on the Kalama River bar, and to the extensive deposits of coarse sediments that have accumulated in tributary mouths;
- Increase and/or enhance off-channel and rearing habitat within the Kalama River;
- Continue to monitor and repair or decommission roads;
- Seek agreements to minimize the amount of timber harvest occurring within the basin at any one time to maintain hydrologic maturity and minimize peak flows.

Critical habitats that need protection include:

- Fall chinook, chum spawning grounds in the lower mainstem;
- Winter steelhead spawning and rearing habitat in the mainstem above the lower falls;
- Lower river tributaries and off-channel rearing areas for coho salmon;
- The five most productive tributaries for summer steelhead (Gobar, Wildhorse, Langdon, and Lakeview Peak creeks, and the North Fork Kalama).

Lewis River Habitat Limiting Factors

The main habitat limiting factor on the Lewis river is the system of dams that block passage to 80% of the historic anadromous habitat. Flow regimes and ramping rates have

been set to protect a healthy run of native fall chinook downstream of the dams, but revisions may need to be made to protect other ESA listed stocks. Most of the lower floodplain has been diked and disconnected from the river, limiting rearing habitat for juvenile salmonids. Riparian conditions and LWD abundance were considered poor in most areas within the basin.

A large tributary, Cedar Creek provides the majority of spawning rearing habitat left in the Lewis River system for steelhead and coho. Major factors limiting habitat within Cedar Creek include elevated water temperatures, low summer flows, and spawning gravels cemented with fine sediments.

Small populations of native adfluvial bull trout/Dolly Varden are found above the dams in the reservoirs and in Cougar, Rush, and Pine creeks. Limiting factors include excessive fine sediment, loss of riparian habitat, and elevated stream temperatures from the eruption of Mt. Saint Helens, logging, and road construction.

Recommendations for addressing limiting factors in the Lewis River include:

- Continue to look for ways to reintroduce anadromous fish above the dams;
- Increase and/or enhance off-channel and rearing habitat within the lower Lewis River and within Cedar Creek;
- Reduce fine sediment inputs to Cedar Creek and its tributaries;
- Look for ways to reduce water temperatures and augment low flows within the Cedar Creek basin.

Some of the most critical habitats in need of protection include:

- The Cedar Creek basin provides most of the spawning and rearing habitat for coho, and steelhead within the Lewis River;
- Protection of the native fall chinook spawning grounds and juvenile rearing areas is considered critical;
- Rush, Cougar, and Pine creeks provide the only spawning habitat for bull trout.

East Fork River Habitat Limiting Factors

Large portions of the upper East Fork watershed repeatedly burned during the first half of the century. The watershed is slowly recovering; however, these disturbances have had significant impacts on the hydrology, the structure, composition, and age-class distribution of the plant communities, as well as riparian and instream habitats.

Elevated water temperatures are considered a major problem in many tributaries and especially within the lower East Fork. The recent avulsion of the East Fork into abandoned gravel pits increased already high rates of erosion and channel instability in the lower river and led to a significant loss in spawning habitat for fall chinook. Diking and development within the floodplain has largely disconnected the river and reduced over-winter habitat and low flows appear to limit the amount of available rearing habitat in the summer for juvenile salmon and steelhead.

Recommendations for addressing limiting factors in the East Fork Lewis River include:

- Assess changes in bank and channel stability, erosion rates, water quality, and predation rates resulting from the recent avulsion into the Ridgefield Pits, and look for both short-and long-term solutions that will help restore the habitat;
- Continue efforts to reduce water temperatures and improve overall water quality, and to augment flow during low-flow periods;
- Reconnect and enhance limited off-channel and floodplain habitat;

Some of the most critical habitats in need of protection include:

- The lower 10 miles of the East Fork provides most of the limited floodplain habitat that remains within WRIA 27, and critical fall chinook and chum spawning habitat;
- Rock Creek (upper) and the mainstem above Sunset Falls provide the most critical winter and summer steelhead spawning and rearing habitat in the East Fork basin.

Data Gaps

The ability to determine what factors are limiting salmonid production, and to prioritize those factors within and between subbasins is limited by the current lack of specific habitat assessment data. Collecting this baseline data will be critical for developing effective recovery plans, for prioritizing future recovery efforts, and for monitoring the success of those efforts. The significant data gaps in WRIA 27 include:

- Watershed level processes such as hydrology, sediment transport and storage, nutrient cycling, vegetation composition and structure;
- Recent and comprehensive data on the distribution and condition of stocks;
- Physical surveys of habitat conditions within most of the tributary streams;
- Comprehensive water quality data from all major subbasins;
- Minimum flow requirements and water quality standards that are based on the needs of anadromous salmonids.

The following chapters provide a detailed assessment of the habitat limiting factors by subbasin for WRIA 27.